

WHAT IS CLAIMED IS:

1. A lighting device, comprising:

an optically non-opaque wall consisting essentially of a polymeric material and defining a portion of an envelope;

a light source sealed within the envelope at a pressure of less than one atmosphere absolute; and

an electrical driving means in electrical communication with the light source for causing the light source to generate light.

2. A lighting device as recited in claim 1, wherein the lighting device is an incandescent lighting device.

3. A lighting device as recited in claim 1, wherein the polymeric wall material comprises a polycarbonate material.

4. A lighting device as recited in claim 1, wherein the polymeric wall material consists essentially of a polycarbonate material.

5. A lighting device, comprising:

an optically non-opaque wall consisting essentially of a polymeric material and defining a portion of an envelope;

a gas disposed and sealed within the envelope at a pressure of less than one atmosphere absolute, the wall being substantially impermeable by the gas; and

an electrical driving means in at least one of electrical and electromagnetic communication with the gas for activating the gas to generate light.

6. A lighting device as recited in claim 5, wherein the lighting device is a gas discharge lighting device.

7. A lighting device as recited in claim 5, wherein the polymeric wall material comprises a polycarbonate material.

8. A lighting device as recited in claim 5, wherein the polymeric wall material consists essentially of a polycarbonate material.

9. A lighting device as recited in claim 5, wherein the wall comprises a substantially cylindrical tube.

10. A lighting device as recited in claim 5, wherein the wall comprises a substantially spherical shape.

11. A lighting device as recited in claim 5, wherein the wall has a cross sectional shape that is non-circular and non-elliptical.

12. A lighting device as recited in claim 5, wherein the wall has a cross sectional profile that is substantially discontinuous.

13. A lighting device as recited in claim 5, wherein the wall comprises a plurality of wall sections and at least one coupler for sealably mating at least two adjacent ones of the wall sections to one another.

14. A lighting device as recited in claim 13, wherein the coupler includes a slip joint.

15. A lighting device as recited in claim 13, further including a bonding agent for bonding the at least two adjacent wall sections to the at least one coupler.

16. A lighting device as recited in claim 5, wherein the wall includes a colorant dispersed within the polymeric material.

17. A lighting device as recited in claim 5, wherein the gas comprises mercury vapor.

18. A lighting device as recited in claim 5, wherein the gas comprises at least one noble gas.

19. A lighting device as recited in claim 5, wherein the pressure within the envelope is at most about 20 torr.

20. A lighting device as recited in claim 5, wherein the gas has an operating temperature in the envelope of between about 32°C and 230°C.

21. A method for making a lighting device, the method comprising:

providing an optically non-opaque wall consisting essentially of a polymeric material to define a portion of a sealed envelope;

disposing and sealing a gas within the envelope at a pressure of less than about one atmosphere absolute; and

attaching an electrical driving source in at least one of electrical and electromagnetic communication with the gas for activating the gas to generate light.

22. A method as recited in claim 21, wherein the polymeric wall material comprises a polycarbonate material.

23. A method as recited in claim 22, wherein the wall providing step comprises making the wall by an extrusion process.

24. A method as recited in claim 22, wherein the wall providing step comprises making the wall by a molding process.

25. A method as recited in claim 22, wherein the wall providing step comprises making the wall by a blow molding process.

26. A method as recited in claim 22, wherein the wall providing step comprises making the wall by an injection molding process.

27. A method as recited in claim 22, wherein the wall providing step comprises making the wall by a vacuum molding process.

28. An electrode housing assembly for a lighting device, the electrode housing assembly comprising:

an electrode housing having a wall, the electrode housing having an interior cavity within the electrode housing wall and an exterior electrode housing cavity;

an electrode shell disposed within the interior electrode housing cavity;

an electrically conductive contact member disposed in the exterior electrode housing cavity and in electrical contact with the electrode shell;

a first connector disposed at the electrode housing wall adjacent to the exterior electrode housing cavity; and

a second connector disposed at the electrode housing wall adjacent to the interior electrode housing cavity and spaced from the first connector.

29. A connector for use in a lighting device to connect a GTO wire to a lighting electrode housing, the connector comprising:

a connector body comprising

a wall forming an interior cavity having a first end and a second end, and

a slide assembly comprising a pair of slide surfaces, a slide channel, and a slide movably disposed within the slide channel to slidably contact the slide surfaces;

a locking jaw assembly comprising a locking jaw for gripping the GTO wire, the locking jaw comprising at least two gripping surfaces resiliently disposed within the interior wall cavity at the first cavity end by a pair of support members, at least one of the gripping surfaces being electrically conductive, and an electrically conductive contact ring electrically coupled to the at least one electrically conductive gripping surface, at least one of the support members being in slidable contact with the slide so that movement of the slide toward the first cavity end causes the support member to move at least one of the gripping surfaces closer to the GTO wire;

a cap coupled to the connector body wall at the first cavity end to substantially enclose the first cavity end, the cap including a GTO wire access port for passage of the GTO wire through the cap; and

a fastener disposed at the second end of the connector body wall for connecting the connector body to the lighting electrode

housing.

30. A connector for use in a lighting device to connect a GTO wire to a lighting electrode housing, the connector comprising:

a connector body comprising

a wall forming an interior cavity having a first end and a second end, the first cavity end having threads,

a GTO wire access port for passage of the GTO wire through the wall, and

a first contact surface disposed within the interior wall cavity adjacent to the GTO wire access port;

a locking jaw assembly mounted within the interior wall cavity, the locking jaw assembly comprising a locking jaw movably and resiliently disposed over the first contact surface and biased away from the first contact surface so that the GTO wire may be inserted through the GTO wire access port and onto the first contact surface while the locking jaw is forced away from the GTO wire and the first contact surface;

a second contact surface disposed substantially adjacent to the second wall cavity;

a cap having threads for mating to the connector body threads to detachably couple the cap to the connector body wall at the first cavity end to substantially enclose the first cavity end, the cap having a surface which moves toward and contacts the locking jaw and moves the locking jaw toward the first contact surface as the cap threads are further engaged, so that the

further engagement of the cap threads causes the locking jaw to move against and secure the GTO wire on the first contact surface; and

5 a fastener disposed at the second end of the connector body wall for connecting the connector body to the lighting electrode housing.

31. A connector for use in a lighting device to connect a GTO wire to a lighting electrode housing, the connector comprising:

10 a connector body having first and second ends and including a first aperture for passage of the GTO wire;

a push button slidably mounted within the connector body at the first end of the connector body and operatively coupled to a second aperture;

15 a biasing device for biasing the second aperture out of alignment with respect to the first aperture, wherein the second aperture becomes aligned with the first aperture when a force is applied to the push button so that the GTO wire may pass through the first and second aperture, and wherein the biasing device causes the first and second apertures to contact and grip the GTO wire when the force is removed; and

20 a fastener disposed at the second end of the connector body for connecting the connector body to the lighting electrode housing.

25 32. A coating for a wall of a lighting device, the coating comprising a silicon-bearing material.

33. A coating as recited in claim 32, wherein the silicon-bearing material comprises a silica.

34. A coating as recited in claim 32, wherein the wall comprises a polymeric material.

35. A lighting device, comprising:
an optically non-opaque wall consisting essentially of a polymeric material and defining a portion of an envelope;
a coating comprising a silicon-bearing material disposed on the wall;

a gas disposed and sealed within the envelope at a pressure of less than one atmosphere absolute, the wall being substantially impermeable by the gas; and

an electrical driving means in at least one of electrical and electromagnetic communication with the gas for activating the gas to generate light.

36. A lighting device as recited in claim 34, wherein:
the wall includes an interior surface and an exterior surface; and

the coating is disposed upon the interior wall surface.

37. A lighting device as recited in claim 34, wherein the coating comprises silica.

38. A method for depositing a coating on a wall of a lighting device which wall comprises an envelope, the method comprising:

causing the pressure within the envelope to be substantially at a vacuum;

desorbing unwanted gas s from the wall;

disposing a deposition gas comprising a silicon-bearing material into the envelope; and

applying electromagnetic energy across the envelope to cause a portion of the deposition gas to deposit on the wall as a silica coating.

39. A method as recited in claim 38, wherein the silicon-bearing material comprises a silica.

40. A method as recited in claim 38, wherein the silicon-bearing material comprises a siloxane.

41. A method as recited in claim 38, wherein the wall comprises a polymeric material.

42. A method as recited in claim 38, wherein the wall comprises a polycarbonate material.